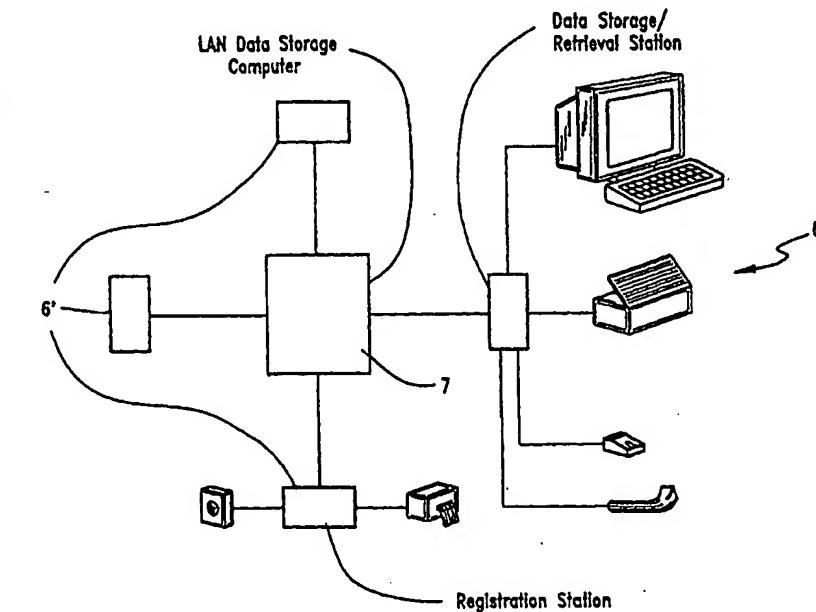




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(54) Title: METHODS, SYSTEMS AND APPARATUS FOR MANAGING DATA STORAGE AND TRANSFER



## (57) Abstract

A system comprising a central database (7) containing stored registration data and at least one electronic file of a user, and a local station (6) for collecting registration data from the user, accessing the central database for comparing the collected registration data to the stored registration data and accessing the electronic file if the collected registration data substantially matches the stored registration data.

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METHODS, SYSTEMS AND APPARATUS FOR MANAGING  
DATA STORAGE AND TRANSFER

5

TECHNICAL FIELD

This invention relates to biometrics and, more particularly, to biometric-based methods, systems and apparatus for managing data storage and transfer.

10

BACKGROUND ART

Many people possess important documents that relate to their lives. These documents may comprise medical test results, drug test results, diplomas, birth certificates, wedding licenses, passports, school transcripts, legal documents, tax returns, contracts, leases, stock and bond certificates, government records, financial statements, judgments, insurance documents, etc. Unfortunately, many people lose or misplace such documents, only to later need them. To replace documents can be time consuming, expensive and frustrating. Accordingly, there is a need in the art for people to have a safe and secure electronic repository for personal and business documents.

25

DISCLOSURE OF THE INVENTION

The invention proposes a new and improved system for managing electronic documents and for managing data storage and transfer. The system is comprised of a central database containing stored registration data and 30 at least one electronic file of a user. The system also includes a local station for collecting registration data from the user, accessing the database for comparing the collected registration data to the stored

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registration data and accessing the electronic file if the collected registration data substantially matches the stored registration data. The stored registration can comprise a key and/or biometric data of the user.

5 The key preferably comprises a reference character such as a numerical, alphabetical or alphanumerical symbol. The local station preferably comprises a local computer linked to the central database and apparatus for collecting and transferring registration data to the

10 local computer. The local computer is linked to the central database over an electronic communication pathway. The invention also contemplates associated methods.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and further and more specific objects and advantages of the invention will become readily apparent to those skilled in the art from the following detailed description thereof taken in conjunction with

20 the drawings in which:

Fig. 1 illustrates a system for managing electronic documents;

Fig. 2 illustrates the system of Fig. 1 as it would appear in use; and

25 Fig. 3 illustrates the system of Fig. 1 including a computerized network.

## BEST MODES FOR CARRYING OUT THE INVENTION

Ensuing embodiments of the invention comprise new and improved methods, systems and apparatus for managing electronic documents, data transfer and data storage.

5 This invention is especially useful as an electronic repository for important documents such as medical test results, drug test results, diplomas, birth certificates, wedding licenses, passports, school transcripts, legal documents, tax returns, contracts, leases, stock and bond certificates, government records, financial statements, judgments, insurance documents, etc. To access the repository, users must be positively identified. One way to identify users is with their unique biometric data of a portion of the anatomy of

10 15 that person. Biometric data or measurements can include fingerprint or iris patterns, or measurement(s) of an anatomical function such as signature or voice recognition or voice print, etc. Various biometric measurements or data and methods of collecting the

20 25 measurements or data are disclosed in U.S. patent application serial number 08/686,211, filed on 23 July 1996 and entitled "Method, Apparatus and System for Anonymous Verification of Infectious Status of Humans" which is an invention of the same inventor and which is owned by the same entity, and hereby incorporated by reference herein. The teachings of PCT application serial number PCT/US99/13049, filed on 09 June 1999 and entitled "Method, System and Apparatus for Authorization and Verification of Documents" and U.S. provisional application serial number 60/114,302, filed 31 December 1998 and entitled "Method, System and Apparatus for Electronic Storage and Retrieval of Personal/Business Data and Documents Via Networked Computers and the

Internet" are also incorporated by reference herein. The biometric data are then encoded into biometric code for storage in a database of a computer or other storage device. Encoding typically takes place during the 5 process of obtaining biometric data.

The invention is a system that is comprised of a central database into which electronic folders can be established and stored. User-specific registration data and an electronic file may be established and stored 10 into each folder. The registration data preferably comprises biometric and additional identification data of a specific user such as a stored digital photograph. The registration data may also include a key in the form of a personal identification number or symbol, the name, 15 address, phone number and social security number of the user, etc. The key can comprise a numerical symbol, an alphabetical symbol or an alphanumerical symbol. The registration data identifies the user and is linked to the electronic file. The central database is accessible 20 by way of a central computer, a communication pathway, a local area network, or perhaps one or more online servers accessible through one or more publicly accessible world wide web sites. The registration data can be collected at the central computer or by way of a 25 publicly accessible web site at, for instance, a local station. In this regard, the local station can be used for collecting registration data from a user and then storing the registration into the central database. To access the database either at the central computer or by 30 way of a publicly accessible web site at, for instance, a local station, registration data must be collected from the user and then compared to registration data stored in the central database. Only if the collected

registration substantially matches the stored registration data is access to the electronic file granted. After access is granted, the user may transfer data and/or documents to and from the electronic file.

5       Turning now to the drawings in which like reference characters indicate corresponding elements throughout the several views, attention is directed to Fig. 1, showing a system 5 for managing electronic documents. System 5 is comprised of a local station 6 that includes  
10      a computer 11, a biometric data collector 17, an attached bar code printer 13 for printing two-dimensional bar code labels 15, and an attached document scanner 19. Collector 17, printer 13 and scanner 19 are each coupled to computer 11 and interact with computer  
15      11. Collector 17 may comprise a digital camera, an iris scanner, a fingerprint scanner or other device for taking biometric data. For instance, photographs may be taken with collector 17 and then downloaded to computer 11 in a conventional fashion, documents may be scanned  
20      and downloaded to computer 11 with scanner 19, and printer 13 may be used for printing documents, two-dimensional bar code labels 15 encoded with biometric data and photographs from computer 11. It should be understood that an image of an individual that is not  
25      strictly biometric data, in that the image is not electronically compared, but rather manually compared by an individual such as a clerk, may be employed. In this case a digital camera may be added or, if collector 17 is a digital camera, an image may be attached to the  
30      file as well as being used as biometric data.

Turning to Fig. 3, local station 6 is linked to a central database 7. Central database 7 is normally part of a central computer preferably accessible through a

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server. The server is linked to local station 6 by way of the Internet, a local area network or other type of communication pathway or network. A plurality of local stations 6' may be linked to central database 7 if 5 desired.

In accordance with the invention, a user is registered. This registration normally takes place at local station 6 as shown in Fig. 2. At local station 6, a clerk 21 collects registration data from user 12, 10 accesses central database 7, establishes a folder and stores into the folder the registration data and an electronic file. The registration data is linked to the electronic file and the folder is stored into central database 7. The clerk 21 interfaces with computer 11 and central database 7 with an input device, such as 15 keyboard 22. At this point, the clerk 21 prints one or more two-dimensional bar code labels 15 and gives them to user 12. The one or more two-dimensional bar code labels 15 are encoded with the registration data of the 20 user that was stored in central database 7. The one or more labels 15 are provided to user 12 so that he or she can affix them to documents user 12 may wish to input into his or her electronic file.

After user 12 is registered, he or she may then 25 access his or her electronic file for the purpose of storing or retrieving electronic documents. In terms of storage, user 12 may bring a document having affixed thereto a two-dimensional bar code label 15 containing registration data. Using bar code scanner 24, clerk 21 30 scans the label 15, which downloads the registration data contained therein to computer 11. The clerk may also request user 12 to input his or her key into keypad 26, which is linked to computer 11. The clerk can also

request additional biometric data of the user, such as an iris scan, a fingerprint scan, etc. In this regard, computer 11 may be attached to additional biometric collection devices such as an iris scanner, a 5 fingerprint scanner, etc. After scanning the label 15, computer 11, either automatically or at the behest of clerk 21, displays the registration data on monitor 23, which preferably includes a digital photograph of user 12. By comparing the displayed digital photograph to 10 user 12, clerk 21 can verify the identity of user 12. Identity is verified if the displayed digital photograph and, perhaps, the key and other biometric data taken from the label 15 substantially matches user 12. If the displayed registration data includes other data such as 15 address, phone number and other specific data concerning user 12, clerk 21 may further verify user 12 identity by requesting identification documents from user 12 and comparing the content of the identification documents to the displayed registration data. In another embodiment, 20 computer 11 may, either automatically or at the behest of clerk 21, initiate a matching search of the database for matching the registration data downloaded from the label 15 provided from user 12 and the registration data stored in central database 7. After a match is found, 25 access to a specific electronic file may granted either automatically or at the behest of clerk 21.

If clerk 21 cannot verify the identity of user 12 by virtue of the foregoing means, clerk 21 denies user 12 access to central database 7. However, if clerk 21 30 positively identifies user 12, clerk 21 may allow access to database for user 12 to transfer documents to and from his or her electronic file. To access central database 7, clerk 21 may prompt computer 11 to access

central database 7, search central database 7 for stored registration data matching the registration data downloaded from the label 15 provided from user 12, and then access the electronic file linked to the stored 5 registration data that matches the registration data downloaded from the label 15 provided from user 12. After the electronic file is accessed, documents, like document 25 bearing label 15, may, for instance, be scanned into computer 11 by way of document scanner 28 10 and then stored into the electronic file. Documents stored into the electronic file may also be accessed and printed for user 12.

It will occur to those skilled in the art that the invention herein disclosed as preferred embodiment is 15 for illustrative purposes. Various changes and modifications to the embodiments herein chosen for purposes of illustration will readily occur to those skilled in the art. For instance, the biometric data may comprise a fingerprint scan, facial recognition 20 data, iris scan code or other biometric reading. Also, the use of this invention in the home by a user is envisioned wherein the home computer is equipped with a two-dimensional bare code scanner and a biometric scanner and is usable in a manner like that of local 25 station 6. In this scenario, the home computer is linked to a digital camera and an online clerk. The online clerk can see the user as the user scans the bar code at home and then enters a key on the home computer keyboard. Consistent with this disclosure, the bar code 30 contains biometric data of the user.

Similarly, it is envisioned that the spouse or designee of a user can be authorized to access the user's electronic file via a suitable authorization

procedure. For example, user A can visit a registration station, which may comprise a local or central registration station, accompanied by a spouse or designee and have a digital photograph and/or biometric scan taken of the spouse or designee. This image data is then input into a two-dimensional bar code of user A and then given to the spouse or designee. Access to the electronic file of user A may then be granted to the spouse or designee in the manner previously described.

10 Billing of services electronically may also be carried out with this invention. For example, fees can be paid via credit card and the payment records linked to the electronic file such that the payment is listed as current or in arrears. Data files not paid can be  
15 quarantined or returned to the user and thus taken off from listing on the system. Deleting files is also envisioned, where the user is authorized through identical identification and verification procedures to those herein previously described.

20 It is further anticipated that electronic files can be entered by a user into the user's file from electronic storage media such as a floppy or compact disk, ROM or similar media. It is further anticipated that the system described can be used by a user to  
25 authorize the electronic transfer of data files. It is still further anticipated that the operator of a business can designate one or more of his or her staff to prepare and update a data file under their individual photograph/key/biometric data for storage and retrieval  
30 of business documents. The system can optionally operate in a self-serve mode as well. In this regard, the system can operate without a clerk where a user can store and retrieve data and documents through a direct

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interface with a central computer. The central computer interface can, for instance, include a person viewing the person at the remote station via a cameral linked to the remote station and to the central computer.

5 Alternatively, the interface at the central computer can be a computer software program that performs the functions of a clerk.

Other uses of the invention are envisioned to be a network of computers for managing personal and business documents and data contained in an electronic repository. To the extent such modifications and variations do not depart from the spirit of the invention, they are intended to be included within the scope thereof.

11  
CLAIMS

1. A system comprising:
  - a central database containing stored registration data and at least one electronic file of a user; and
  - a local station for collecting registration data from the user, accessing the central database for comparing the collected registration data to the stored registration data and accessing the electronic file if the collected registration data substantially matches the stored registration data.
2. The system of claim 1, wherein the stored registration data comprises a key.
3. The system of claim 2, wherein the key comprises a reference character.
4. The system of claim 3, wherein the reference character comprises one of a numerical symbol, an alphabetical symbol and an alphanumerical symbol.
5. The system of claim 1 wherein the stored registration data comprises biometric data.
6. The system of claim 1, further including a central computer linked to the central database, the central database accessible through the central computer.
7. The system of claim 1, wherein the local station comprises a local computer linked to the central

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database and apparatus for collecting and transferring registration data to the local computer.

8. The system of claim 7, wherein the local computer is linked to the central database over an electronic communication pathway.

9. The system of claim 1, wherein the local station includes a printer for printing a two-dimensional bar code encoded with registration data.

10. The system of claim 9, wherein the local station further includes a reader for reading two-dimensional bar codes, storing registration data of two-dimensional bar codes and searching the storage of the central station for matching stored registration data.

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11. A system comprising:

a central database including stored electronic folders each concerning one of a plurality of users, each electronic folder containing stored user registration data and at least one electronic file; and

at least one local station for collecting user registration data, accessing the central database for comparing collected user registration data to the stored registration data and accessing the electronic file of at least one of the electronic folders if the collected registration data substantially matches the stored registration data of the one of the electronic folders.

12. The system of claim 11, wherein the stored registration data comprises a key.

13. The system of claim 12, wherein the key comprises a reference character.

14. The system of claim 13, wherein the reference character comprises one of a numerical symbol, an alphabetical symbol and an alphanumerical symbol.

15. The system of claim 11, wherein the stored registration data comprises biometric data.

16. The system of claim 11, further including a central computer linked to the central database, the central database accessible through the central computer.

17. The system of claim 11, wherein the local station comprises a local computer linked to the central

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database and apparatus for collecting and transferring registration data to the local computer.

18. The system of claim 17, wherein the local computer is linked to the central database over an electronic communication pathway.

15

19. A method of managing electronic data storage and transfer comprising the steps of:

establishing a database containing an electronic file;

collecting reference registration data of a user;

storing the reference registration data in the central database;

associating the reference registration data with the electronic file;

collecting registration data of the user at a local station;

accessing the database;

comparing the collected registration data to the reference registration data; and

only if the collected registration data substantially matches the reference registration data, accessing the electronic file for at least one of retrieving and storing data.

20. The method of claim 19, wherein the step of collecting reference registration data and the step of collecting registration data each comprise the step of collecting biometric data.

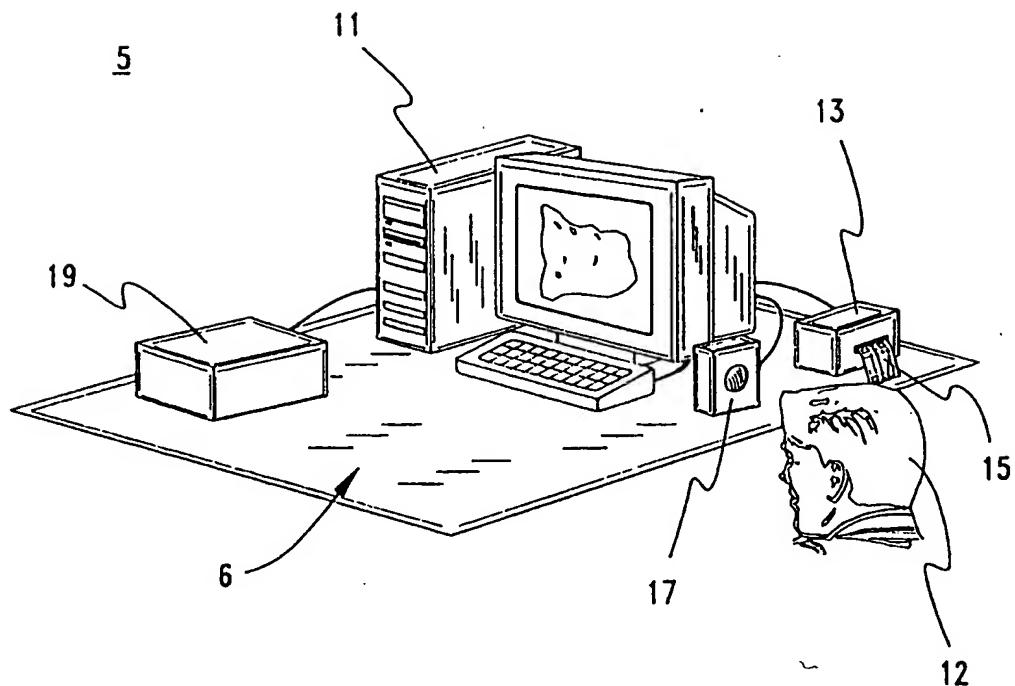


Fig. 1

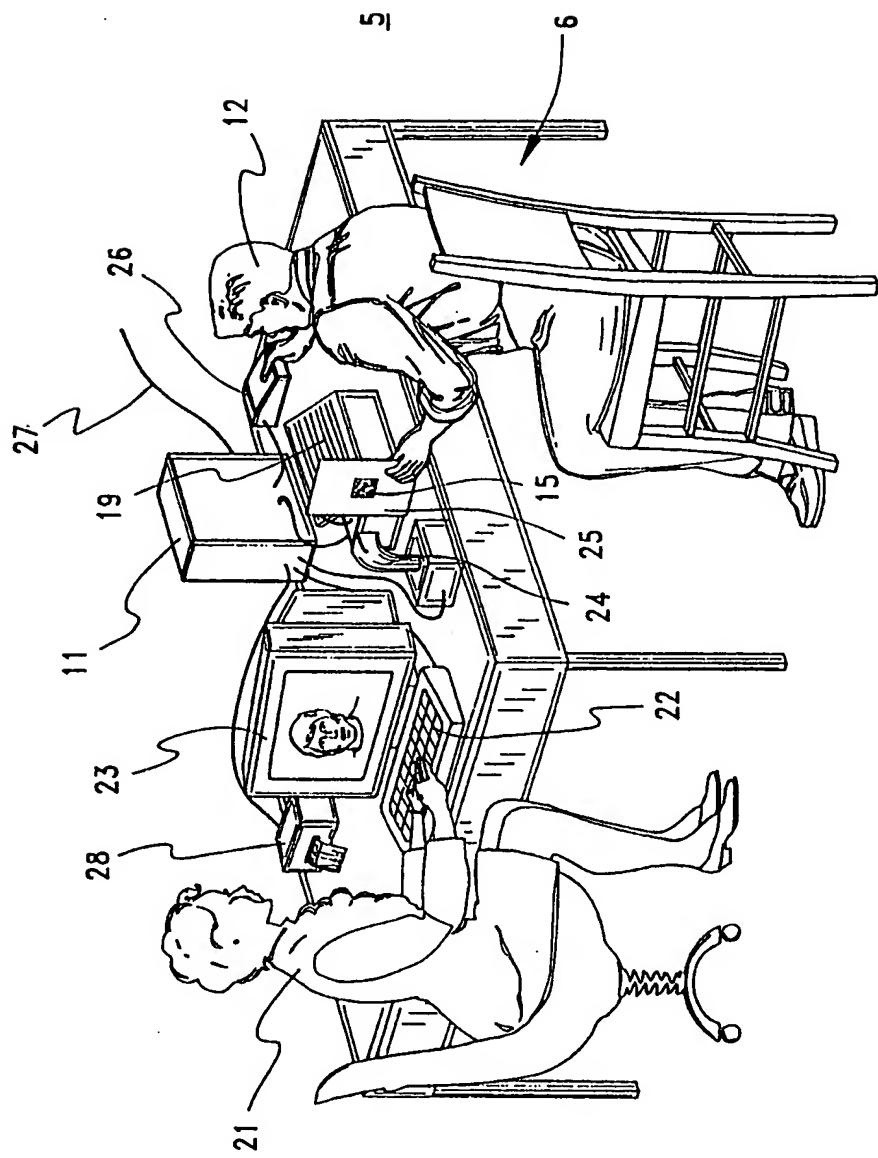
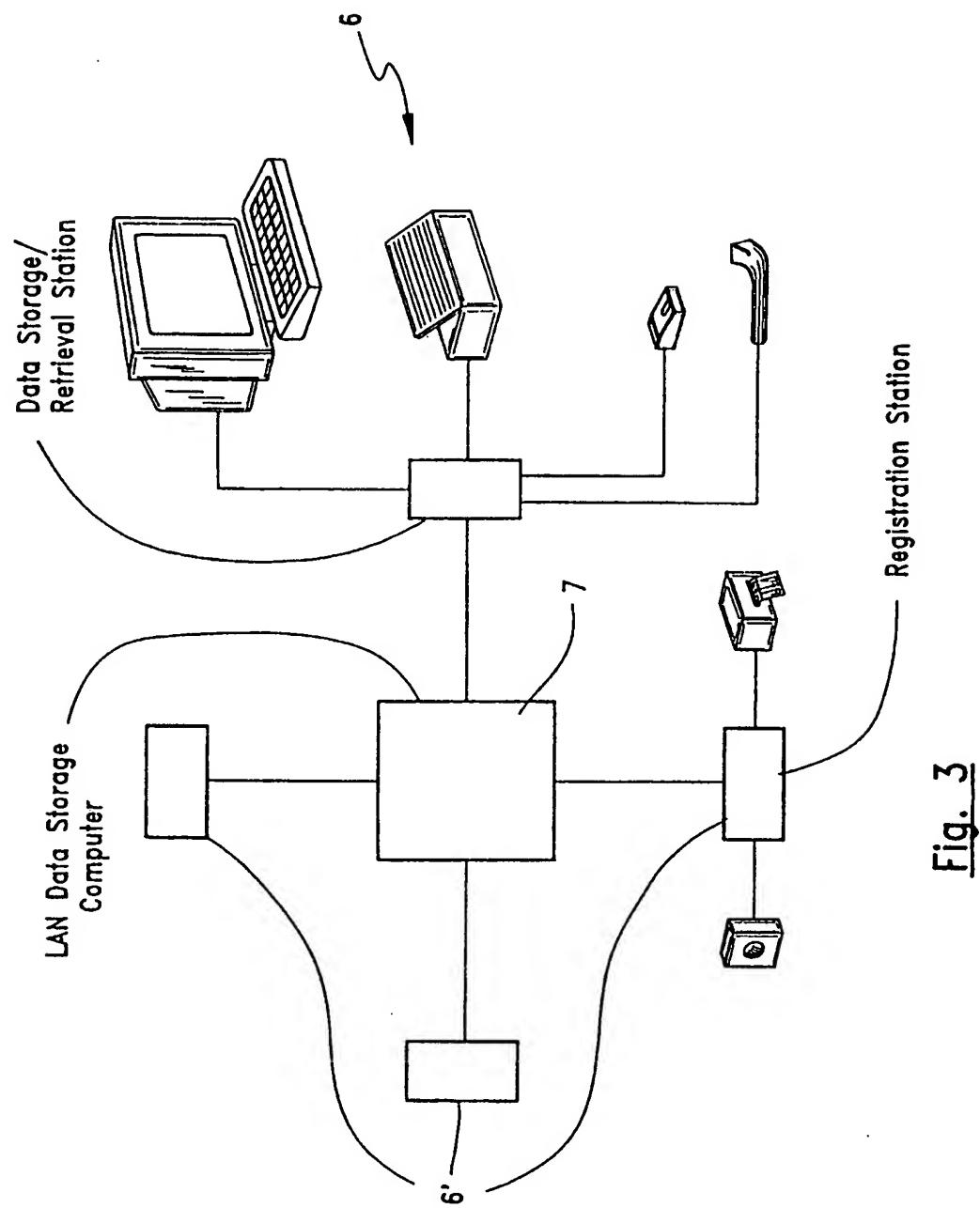


Fig. 2



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/31197

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/30

US CL :707/6, 102, 104; 235/380,382; 382/115,125

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST, IEEE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WANG, J. T. L. et al., "Fast retrieval of Electronoc documents in digital libraries", 1995 Proceeding Seventh International Conference on Tools with Artificial Intelligence, 5-8 Nov. 1995, pp 208-215	1-20

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